XXXV. *Descriptions of some new Species of Exotic Hymenopterous Insects.* *By* J. O. Westwood, Esq., F. L. S., &c.

[Read December, 1840.]

Section. ACULEATA.

Familia. SPHEGIDÆ.

Trirogma, *Westw.*

Genus *Hymenopterorum* novum et eximium, characteribus insolitis distinctum et ad sectionem *Aculeata Fossoria* pertinens.

Corpus subelongatum, punctatum, cælureo-coloratum, et pilis longis piceis undique villosum; thorace antice attenuato, abdomine thorace haud longiori.

Caput mesothorace paullo angustius, supra subdepressum; clypeo brevi, subdeclivi, supra tuberculo armato, in quo insident antennæ. *Oculi* magni, angulos laterales et anticos capitis occupantes. *Ocelli* 3 in triangulum dispositi et inter oculos positi.

Antennæ ♂ fere corporis longitudine, graciles, filiformes, 13-articulatæ, articulis apicalibus multo brevioribus, tenuoribus et paullo curvatis. *Clypeus* transversus. *Labrum* minutissimum, setosum, exsertum, obovatum, depressum, membranaceum. *Mandibulæ* validæ curvatæ, apice acutæ, intus dente latissimo (cujus angulus basalis valde prominens est et acutus), externe villosæ. *Maxillæ* parvæ lobo apicali in medio plagâ coriaceâ mediâ instructæ. *Palpi maxillares* 6-articulati, articulo 1mo minuto, 2bus proximis majoribus, ultimis tribus elongatis et gracilioribus. *Mentum* compressum, medio longitudinali corneo. *Labium* retractum, lobis duobus lateralibus membranaceis instructum. *Palpi labiales* 4-articulati; articulo basali longiori, 2do breviori.

Thorax oblongo-ovatus, antice attenuatus. *Collare* mesothorace multo angustius, antice angustum, lateribus rotundatis, supra impressione longitudinali in lobos duos supra angulatos divisum. *Mesothorax* latus, tegulis magnitudine mediocri. *Scutellum* breve. *Metathorax* subconicus, lateribus ex medio in tuberculum angulatum productis.

Alæ anticæ stigmate mediocri; cellula unica marginali; tribus completis alteraque inchoata submarginalibus, harum cellula 1ma elongata accipit, versus apicem, venam primam recurrentem; cellula 2da minori antice angustata accipit, pone medium, venam secundam recurrentem, 3tia majori subquadrata.

Pedes graciles simplices, femoribus ad basin clavatis, tarsis longis gracilibus, unguibus bifidis terminatis.

Abdomen subovale e segmentis tribus supra et infra formatum, petiolo breve, segmento primo convexo, lateribus rotundatis et postice coarctato, 2do subquadrato, subconvexo, lateribus rotundatis, 3tio subconico, apice rotundato.

I greatly regret that I have only had an opportunity of examining the male sex of this insect, for the reception of which I have proposed the present genus, especially as it is not to be doubted that the female would exhibit as many remarkable features as the male above described, which indeed offers a combination of characters which we nowhere else meet with amongst the fossorial *Hymenoptera*. The great length of the antennæ, the insertion of the same organs upon a frontal tubercle, the very minute size of the labrum, the angular projections at the sides of the metathorax, the bifid ungues, and especially the existence of only three segments in the abdomen, may all be mentioned as proofs of the anomalous character of the genus.

In respect to the natural situation of the genus it appears to me that it ought to be placed in the family *Sphegidæ*, in the neighbourhood of *Dolichurus*, which has also the antennæ inserted upon a frontal tubercle. It is, however, separated from that genus by many characters. In other respects, especially in the form of the head, collar, bifid ungues, and the construction of the male abdomen, which in *Chlorion* ♂ has the terminal segments almost obsolete, it also nearly approaches *Chlorion*, from which however it is widely distinguished as a genus. In the minute size of the labrum it resembles *Sapyga*, with which, as well as with *Tiphia* and some other Mutillideous and Scoliideous genera, it also agrees in the bifid ungues. In *Tiphia* also the first and second submarginal cells respectively receive a recurrent vein, but this character exists in several other genera belonging to different families; from all these, however, *Trirogma* is distinguished by the arrangement of the other cells of the wings. I know no other fossorial Hymenopterous insect which has only

three segments in the abdomen, and I have therefore selected that character as the best suited for affording a generic name.

Trirogma cærulea, Westw.

Tota cærulea, punctata, griseo-villosa; antennis, tibiis tarsisque nigris, alis hyalinis, stigmate venisque nigris, metathorace utrinque supra lineâ elevatâ obliquâ areâque mediâ basali notato.

Long. corp. lin. 6½; expans. alar. lin. 9½.

Habitat in partibus septentrionalibus Indiæ orientalis.

In Mus. Dom. W. W. Saunders.

I beg to express my best thanks to W. W. Saunders, Esq., for an opportunity of examining this and other novelties in a splendid collection of insects which he has lately received from Northern India, collected by Lieut. Campbell; a collection exceedingly interesting in a Entomo-geographical point of view, combining the peculiarities of the Himalayan and more tropical Indian forms, and comprising an unusual number of novelties, not only of species but also of genera, in all the orders of insects, and which, as a whole, may be considered as one of the most characteristic collections which has yet been brought to England from the East Indies.

Plate XII. fig. 3. *Trirogma cærulea* ♂ magnified.
3 *a*, front of clypeus and base of antennæ; 3 *b*, mandibles and labrum; 3 *c*, maxilla; 3 *d*, labium; 3 *e*, ungues.

Aphelotoma, *Westw.*

Genus novum ex ordine *Hymenopterorum* et familia *Sphegidarum Chlorioni* affine.

Caput latum facie depressa, antice haud tuberculata, parum producta et paullo ante oculos recte truncata. *Labrum* horizontale, mediocre oblongo-subquadratum, angulis anticis rotundatis, margine antico longe ciliato. *Mandibulæ* ♀ crassæ, versus basin subito constrictæ, apice acutæ, dente interno parvo acuto armatæ. *Maxillæ* basi corneæ, lobo apicali mediocri supra rotundato. *Palpi maxillares* 6-articulati, articulis duobus basalibus brevibus, fere æqualibus; 3tio longiori et paullo crassiori; 4to longiori, graciliori, duobus ultimis æqualibus, gracilibus. *Mentum* corneum compressum. *Labium* membranaceum productum integrum, lobis duobus

lateralibus munitum. *Palpi* labiales 4-articulati; articulo 1mo longo, 2do breviori crassiori, duobus ultimis gracilioribus subæqualibus. *Antennæ* breviores, subfiliformes, articulo 1mo longo, 3tio longissimo.

Collare conicum dorso in medio plano, angulis posticis rotundatis. *Metathorax* obconicus postice subtruncatus, angulis posticis haud productis. *Abdomen* segmentis quatuor basalibus subæqualibus; 1mo et 2do nitidis, lævibus, reliquis obscurioribus. *Alæ* breves, anticæ vix thorace longiores; cellula unica marginali apice haud appendiculata; cellulisque quatuor submarginalibus; 1ma majori, (in medio ad apicem appendiculata,) venam primam recurrentem excipiente; 2da parva, antice attenuata; 3tia subquadrata et venam secundam recurrentem versus basim excipiente; 4ta ad apicem alæ currente. *Pedes* ♀ elongati, omnino inermes et ciliis destituti. *Tarsorum* articulo penultimo simplici. *Ungues* in medio subtus dente parvo instructi.

It is difficult to speculate on the habits of this interesting insect. The entire absence of ciliæ in the legs might lead to the idea that it was a parasite; but we now well know that this character offers no criterion as to the working or parasitic habits of the fossorial *Hymenoptera*. In the aberrant species of *Sphex*, *S. lobata*, *&c.* we find very strongly ciliated feet, and in the still more closely allied types of the genus *Chlorion* (*C. compressum*, *&c.*), the legs, although not strongly ciliated, are compensated by the dilatation of the penultimate tarsal joint, and by the produced angles of the preceding joints. The type of *Chlorion* is well ascertained to attack the cock-roaches, which it buries, as the support of its progeny. The slightly produced clypeus and the short strong dentate mandibles of *Aphelotoma*, are other characters which prove a distinct economy from that of the true species of *Chlorion*.

The only species of *Aphelotoma* which I have hitherto seen is a native of Van Diemen's Land, and has been communicated to me by Mr. Ewing.

Aphelotoma tasmanica, Westw.

Nigra, pedibus rufis; alis fuscis, anticis fasciâ mediâ albâ.

Long. corp. lin. 4¾, expans. alar. lin. 6.

Habitat in Terra Van Diemenii.

In Mus. nostr. Communicavit Dom. Ewing.

Caput nigrum, opacum, sub lente striolis lævissimis notatum, impressione semicirculari ante antennas clypeum simulante; antennæ nigræ, articuli 4ti apice, 5to toto, 6to fere toto rufescentibus. Thorax niger. Collare nigrum compressum, dorso tamen planiusculo lineâ tenui mediâ longitudinali impressâ. Metathorax supra planiusculus, carinis duabus elevatis utrinque, dorso lineis circiter 10 irregularibus longitudinalibus elevatis, striis transversis connexis. Abdomen nigrum elongato-ovale, segmento 1mo ad apicem parum constricto nitido; 2do paullo majori nitido; 3tio fere æquali subopaco; 4to minori; 5to minuto; 6to attenuato acuto rufescenti. Pedes rufo-fulvi, tarsorum apicibus paullo obscurioribus. Alæ anticæ fuscæ, fasciâ hyalinâ transversâ ante stigma notatæ; posticæ hyalinæ.

Plate XII. fig. 4. *Aphelotoma tasmanica*, magnified.
4 *a*, front of head with the labrum removed; 4 *b*, labrum; 4 *c*, mandible; 4 *d*, maxilla; 4 *e*, labium; 4 *g*, ungues.

Chlorion, Latr.

The genus *Chlorion* was established by Latreille in the third volume of the "Histoire Générale, &c. des Insectes;" wherein it formed the first genus of the second section of the *Sphegimæ*, characterized by the straight maxillæ and tongue (not bent as in the first section of typical *Spheges* and *Ammophilæ*), the maxillary palpi much longer than the labial, with irregular shaped joints (instead of being regularly shaped, and nearly of equal length with the labial palpi, as in the first section). The only species given as the type of the genus in this volume is the *Sphex lobata* of Fabricius; but as the characters of that species do not accord either with the sectional or generic characters of *Chlorion*, it is necessary to determine what insect Latreille had in view in the establishment of the genus. We accordingly find in the thirteenth volume of the same work, published in 1805, that another species is added as a second type, namely, *Sphex compressa* of Fabricius—an insect generically distinct from the former, and which agrees with Latreille's characters of *Chlorion*. The short maxillæ and palpi, the pointed tip of the labial palpi, the short tongue, the truncation of the extremity of the thorax, the constricted form of the extremity of the basal segment of the abdomen, the small size of the posterior calcariæ, the posterior tibiæ and tarsi almost destitute of ciliæ or bristles, are all characters of *Sphex compressa*

and not of *Sphex lobata*. It is true, however, that Latreille has added a character which does not agree with the female of *S. compressa* although it accords with that sex of *S. lobata*, namely, the mandibles furnished with a "dent remarquable." This character is however found in the male of *S. compressa*, although not in the female, at least the mandibles of the male of that species have a strong *acute* tooth on the inside, of which the females are destitute, whilst the females of *S. lobata* have a *truncated* tooth in the same situation; so that it seems to me not improbable that Latreille had taken this character from *S. lobata* and had added it to the rest taken from *S. compressa*. We find the character of unidentate mandibles given in the thirteenth volume of the "Histoire," &c.; and in the "Genera Crustaceorum," &c. vol. iv. p. 56, *Chlorion* is formed with *Pronæus* into a section of the *Sphegimæ*, having the mandibles internally furnished with a strong tooth or process; the two species above mentioned being still given as the types of *Chlorion*. In all his subsequent works the genus is treated in a similar manner, except that in the second edition of the "Règne Animal" *Sphex compressa* is given as the first, and *S. lobata* as the second, species, and the genus is characterized from the position of the recurrent veins of the wings of *S. compressa* (those of *S. lobata* differing in this respect).

We are thus warranted in considering the *Sphex compressa* as the true type of the genus *Chlorion*, although Latreille at the first gave only the *S. lobata* as its type. It unfortunately happened, however, that during the interval which elapsed between the publication of the third and thirteenth volumes of the "Histoire générale," Fabricius published his "Systema Piezatorum," wherein, referring to Latreille's third volume, he adopted the name *Chlorion*, giving, as Latreille had done, the *Sphex lobata* as its type, with the oral characters of the genus derived from that species; but also inserting in the genus the *Sphex compressa*, and another species congenerous with that insect (*S. sibirica*), as well as various species of *Sphex* and *Pronæus*. Shortly afterwards Jurine published his System of the *Hymenoptera* founded on the variation of the veining of the wings, and accordingly, following Fabricius in considering the *Sphex lobata* as the type of *Chlorion*, he sunk the genus into *Sphex*, with which that species agrees in the veining of the wings; but finding that the *Sphex compressa* possesses a different character in this respect, he formed for its reception a new genus named *Ampulex*, adding a second species, *A. fasciata*, from the south of Europe, of which (as possessing more interest) he

gave a figure in illustration of the genus. As subsequently mentioned, however, this species differs in several slight respects from *C. compressa*, especially in the incomplete veining of the wings forming the submarginal cells. The specimen of *A. fasciata*, figured by Jurine, is a female, and the mandible represented by its side is that of a female being destitute of an internal tooth. Jurine, however, in his generic character, noticed the sexual distinction occurring in the armature of the mandibles.

In the "Genera Crustaceorum," which appeared soon after Jurine's work, Latreille gave *Ampulex* as a synonyme of his *Chlorion;* but in his later works ("Familles Naturelles" and "Règne Animal," second edition) he gives the two genera as distinct, placing them in different sections of the family *Sphegidæ*, having the mandibles internally simple or dentate, thus overlooking Jurine's correct notice of this difference being only sexual. It is thus evident that Latreille regarded the *Ampulex fasciata* as the type of the genus *Ampulex*, and as generically distinct from his own genus *Chlorion*, with which he states that *Ampulex* agrees in the veins of the wings, thus further proving that *Sphex compressa* was his real type of the genus *Chlorion*.

It remains to be noticed that Panzer, in his "Entomologischer Versuch die Jurineschen Gattungen," has pointed out the differences which exist between *Sphex lobata* and *compressa* in their cibarian characters, and that Messrs. Serville and Saint Fargeau, in the "Encyclopédie Méthodique," have given a long generic character of *Ampulex* with *Sphex compressa* as its type, (erroneously, however, stating that the mandibles are internally destitute of teeth in both sexes,) and adding that they consider it doubtful whether Jurine's *Ampulex fasciata* belongs to this genus. They have also adopted as distinct the genus *Chlorion*, dividing it into two sections, the first corresponding with the genus *Pronæus* of Latreille, and the second given as the "*genre Chlorion, Latr.*" including *Chlorion lobatum* and two new species. Lastly, M. Guérin has lately figured a new species congenerous with *Sphex compressa* as an example of the genus *Ampulex*.

From what has been stated above I consider, 1st, that the genus *Chlorion* was always characterized by its founder from *Sphex compressa*, which must be regarded as its real type; 2nd, that Fabricius adopted an error of Latreille in giving *Sphex lobata* as the type, and described a genus under the name of *Chlorion* distinct from that of Latreille, and consequently that a new generic name must be given to *Sphex lobata* if indeed it be generally dis-

tinct from Latreille's *Pronœus;* 3rd, that Jurine's genus *Ampulex* is synonymous with Latreille's genus *Chlorion*.

I am sorry that these conclusions will have the effect of sinking the genus *Ampulex*, which Jurine must certainly have the credit of having first clearly distinguished, and will be at variance with the nomenclature of recent French Hymenopterologists.*

There are several fine species of *Chlorion* in the cabinet of the British Museum which I have not yet had an opportunity of describing. I, however, take this occasion of describing a congenerous insect in my own cabinet, which is by far the most minute species I have yet seen of the genus, in addition to the description of the two allied genera above characterized.

Chlorion cyanipes, Westw.

Parva nigro-cærulea, rude punctata, mesothoracis dorso in medio haud longitudinaliter impresso; pedibus cyaneis ♂.

Long. corp. lin. $3\frac{1}{2}$, expans. alar. lin. $5\frac{1}{2}$.

Habitat apud promontorium Bonæ Spei.

In Mus. nostr.

* Since the preceding was written, the volume upon Insects in the Cabinet Cyclopedia has been published, in which Mr. Shuckard expresses his surprise that the *Ampulicidæ* should so long have been allowed to remain incorporated with the *Sphegidæ*, as they present so many distinctive characters, instancing the formation of the abdomen, the remarkably sculptured metathorax (which is stated to be armed at its extremity with a couple of spines), the nose-like clypeus, and the formation of the penultimate joint of the tarsi. It is added that one genus of them is found in all quarters of the world, and a genus from New Holland is mentioned (by name only) *Conocercus*, which, like *Dolichurus*, is of a black colour. "*Chlorion*, distinguished for its metallic colours," is given as a genus belonging to the next family, *Sphegidæ*.

I need not recapitulate the arguments I have already brought forward in the beginning of this paper to prove that the insects above alluded to, as forming the types of a distinct family, are entitled to the name of *Chlorion* and not to that of *Ampulex*. Neither shall I make any further remark upon the proposed establishment of a distinct family for these insects, than that the characters insisted on by Mr. Shuckard occur only in the typical genus: *Dolichurus*, *Trirogma*, and *Aphelotoma*, the only other genera belonging to the group hitherto described scarcely possessing more than one of the assigned characters, whilst that which is considered the "most remarkable," namely, the form of the tarsi, occurs in none but the type. Of their geographical range none have hitherto been described as inhabitants of the New World. Of the New Holland genus, indicated by name only, I presume from its name and locality that it is identical with my genus *Aphelotoma*. As, however, it had stood in my cabinet as a new genus for several years before it existed in any other collection, I trust that my name and the very detailed description and figure given of the insect at the last meeting of the Society, before even the name *Conocercus* had appeared, will be received with the courtesy which is given to memoirs read before scientific bodies.

Nigro-cærulea, rude et vage punctata. Mesothorax dorso antice haud lineâ mediâ longitudinali impressus, parapteris lateralibus tamen distinctis. Metathorax ut in *C. compressa* striatus, angulo apicali utrinque in tuberculum parvum acutum producto. Abdomen concolor, rude punctatus, apice griseo-villosum. Pedes cyanei, femoribus magis cæruleis; tarsis nigris, articulo 4to lobato, minori tamen quam in speciebus reliquis. Alæ fuscescenti-hyalinæ, nubila subapicali obscuriori in cellula marginali, 2a et 3a subapicalibus et ad angulum analem extensa.

Another species received from the banks of the river Gambia by the Rev. F. W. Hope in great numbers, appears to have been figured by Guérin under the name of *Ampulex compressiventris*, in the Iconographie du Règne Animal.

The typical species, *Am. compressum*, is, I believe, identical with the *Sphex rufilumbis* of Lichtenstein.

The European species figured by Jurine ought evidently to constitute a distinct subgenus; the armature of the head, the different arrangement of the veins of the wings as figured in outline by Jurine, and the elongated and apparently simple feet, are characters distinct from those of the true species of *Chlorion* proper.

XXXVI. *Description of a new Genus of Apterous Hexapod Insects found near London.* *By* J. O. Westwood, Esq., F.L.S.

[Read February 7, 1842.]

At the November meeting of this Society in 1840, I exhibited drawings of a minute wingless insect, which, as it would not accord with the larvæ of any known group of insects, I was induced at the time to think might possibly constitute a new genus of myriapodous insects in an undeveloped state. I had found this insect, which is scarcely a quarter of an inch long, running very quickly amongst the roots of flowers at a little distance below the surface of the ground, in which situation I had also detected immature *Lithobii*, *Juli*, and other *Myriapoda*; and, moreover, finding in this insect a number of minute appendages arranged in pairs on the under surface of the abdominal segments, I at once